

## CLAIMS

1. A nonrecursive digital filter which has an n-stage shift register for sequentially shifting input data having a predetermined number n of bits and in which the output of each output stage of the shift register is multiplied by a filter coefficient and added, characterized in that the n-stage shift register is divided into a plurality of shift registers, and each divided shift register is time-divisionally driven in synchronization with the input data.
2. A nonrecursive digital filter which has an n-stage shift register for sequentially shifting input data having a predetermined number n of bits and in which the output of each output stage of the shift register is multiplied by a filter coefficient and added, characterized in that the n-stage shift register is divided into first and second shift registers each having n/2 stages, and one of the first and second shift registers performs a shift operation at a rising edge of a shift clock and the other performs a shift operation at a falling edge of the shift clock.
3. A nonrecursive digital filter which has an n-stage shift register for sequentially shifting input data having a predetermined number n of bits and in which the output of each output stage of the shift register is multiplied by a filter coefficient and added, characterized by comprising: first and second shift registers to which a spreading-code sequence is input and a shift clock is inputted, each having n/2 stages obtained by dividing the n-stage shift register; a reference-code

register for storing n reference codes; first and second selection means  
 for selecting and outputting the odd-numbered stages and even-numbered  
 stages of the reference-code register according to the shift clock;  
 first multiplication means for multiplying the output of each stage of  
 5 the first shift register by the output of the first selection means;  
 second multiplication means for multiplying the output of each stage of  
 the second shift register by the output of the second selection means;  
 and correlation-strength calculation means for adding the multiplication  
 results of the first multiplication means and the second multiplication  
 10 means to output a correlation strength; and characterized in that the  
 first and second shift registers are configured such that either one of  
 them performs a shift operation at a rising edge of the shift clock and  
 the other performs a shift operation at a falling edge of the shift  
 clock; and the first and second selection means is configured such that,  
 15 when the shift clock is in an ON state, either one of them outputs the  
 even-numbered stages of the reference-code register to the first  
 multiplication means and the other outputs the odd-numbered stages to  
 the second multiplication means, and when the shift clock is in an OFF  
 state, the either one of them outputs the odd-numbered stages of the  
 20 reference-code register to the first multiplication means and the other  
 outputs the even-numbered stages to the second multiplication means  
 4. A nonrecursive digital filter according to Claim 3, characterized in  
 that the first and second selection means is formed of multiplexers each  
 disposed for two stages of the reference-code register and selecting the  
 25 odd-numbered stages and even-numbered stages thereof; the first and

second multiplication means is formed of exclusive-OR circuits; and the correlation-strength calculation means is formed of an adder.

5. A radio communication unit employing a CDMA method for performing operations, including path synchronization holding, when receiving a

5 spread-spectrum RF signal from a base station, characterized by comprising: an RF receiving section for converting a received RF signal into a base-band signal; a correlation section for holding an input digital signal, for holding a spreading code as a reference code, and for performing inverse spectrum conversion while calculating a  
10 correlation therebetween, to output received data; and a base-band demodulation section for demodulating the received data; and characterized in that the input side of one of the correlation section and the base-band demodulation section is connected to the RF receiving section and the output side thereof is connected to the other; and the  
15 correlation section includes a matched filter formed of a nonrecursive digital filter according to one of Claims 1 to 4.

6. A radio communication unit for transmitting information data in packets by a spread spectrum communication method, which directly performs spreading, in a radio local-area network formed with another  
20 radio communication terminal, characterized by comprising: an RF receiving section for converting received information data into a base-band signal; a correlation section for holding an input digital signal, for holding a spreading code as a reference code, and for performing inverse spectrum conversion while calculating a correlation therebetween,  
25 to output received data; a base-band demodulation section for

demodulating the received data; and a packet processing section for performing packet processing according to the received data; and characterized in that the input side of one of the correlation section and the base-band demodulation section is connected to the RF receiving  
5 section and the output side thereof is connected to the other; the output side thereof is connected to the packet processing section; and the correlation section includes a matched filter formed of a nonrecursive digital filter according to one of Claims 1 to 4.

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